



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

*BCS*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/274,010 03/22/99 CLINE

H RD-23.019

EXAMINER
----------

WM31/0201

GENERAL ELECTRIC COMPANY  
CRD PATENT DOCKET ROOM 4A59  
P O BOX 8  
BUILDING K-1-SALAMONE  
SCHENECTADY, NY 12301

ART UNIT	PAPER NUMBER
----------	--------------

2621

DATE MAILED:

4  
02/01/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/274,010

Applicant(s)

CLINE ET AL.

Examiner

Shervin Nakhjavan

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6-11, 13 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 12, and 14 is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.

- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, Lines 2-3, citation "Acquiring a first surface from a body having curvature to be imaged " is indefinite since it is unclear what feature or element exactly is being imaged (e.g. a surface, a body, or curvature) and further limited by this language.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kitamura et al. (US 5,936,628)

Regarding claim 1, Kitamura teaches, a method for registering surfaces comprising: acquiring a first surface from a body having curvature to be imaged (Column 7, Line 55 through Column 8, Line 2); acquiring a second surface from said body (Column 8, Lines 11-15, where the image of the model is the image representing a surface); determining a first curvature of said first surface (Column 8, Lines 3-7); determining a second curvature of said second surface (Column 8, Lines 16-23, where a polygon fitted into the curved surface region is the second surface); shading said first surface in response to said first curvature (Column 7, Lines 17-19); shading said second surface in response to said second curvature (Column 7, Lines 17-19, where both of curves one on top of the other are shaded); and varying orientation of at least one of said first surface and said second surface to align said first surface and said second surface in registration with each other (Column 8, Lines 30-33, where editing unit 16 provides points of view which are related to original range data which defines the orientation of the object that could be modified for better aligning of images);

limitation of claim 2, determining a first curvature utilizing mean curvature (Column 15, Lines 46-56);

limitation of claim 4, determining a first curvature utilizing a Gaussian curvature (Column 15, Lines 26-45);

limitation of claim 6, determining a second curvature includes the step of processing said second surface with marching cubes (Column 18, Line 66 through Column 19, Line 8);

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al..

Regarding claims 7-9, said first surface represents a patient and is generated from patient range data or said second surface represents a patient and is generated from image data, Kitamura teaches processing of three dimensional range data of surface of an object by and further modeling the object based on the image data of the object however, Kitamura fails to specifically teach an object being a patient. Since Kitamura also teaches using three dimensional data obtained from X ray or NMR (Column 8, Lines 56-58) and these systems work on examining patients, it would have been obvious to a person of ordinary skill in the art to have a patient in place of an object, since they both inherently have three dimensional data for Kitamura's image processin system.

Programming Claims 10-11, 13, and 15-18 are inherently taught in the method claims above.

***Allowable Subject Matter***

7. Claims 3, 5, 12, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Other prior art cited***

8. Prior art of record cited and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,173,068 to Prokoski; US Patent 5,931,667 to Papandreas; US Patent 5,726,705 to Imanishi; US Patent 5,163,094 to Prokoski et al.; US Patent 5,142,659 to Rao et al.; 4,821,210 to Rumbaugh; US Patent 4,637,058 to Ross et al.; US Patent 3,805,238 to Rothfjell; and US Patent 3,617,016 to Bolsey are all do image projection, fitting , or matching of one kind or another.

***Contact information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shervin Nakhjavan whose telephone number is (703) 306-5916. The examiner can normally be reached on Monday through Friday from 8:00 am to 5:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

**Any response to this action should be mailed to:**

Assistant Commissioner for Patents  
Washington, DC 20231

**Or faxed to:**

(703) 308-6606 OR (703) 308-5397 (for ***formal*** communications, please mark "**EXPEDITED PROCEDURE**")

Art Unit: 2621

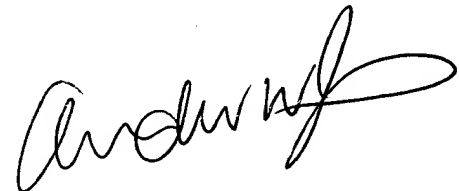
or:

(703) 306-5406 (for *informal* or *draft* communications; please label "PROPOSED" or "DRAFT").

**Hand delivered responses** should be brought to Crystal Park 2, 2121 Crystal drive, Arlington, VA, sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Tech center 2700 customer service office **(703) 306-5631**.

Shervin Nakhjavan S.N  
Patent Examiner  
Group Art Unit 2621  
January 26, 2001



ANDREW W. JOHNS  
PRIMARY EXAMINER